Records of the Western Australian Museum **17**: 249–266 (1995).

Biological inventory of Koolan Island, Western Australia
2. Zoological notes

N.L. McKenzie[1], L. Fontanini[2], N.V. Lindus[2] and M.R. Williams[1]

[1] Department of Conservation and Land Management, PO Box 51, Wanneroo, Western Australia 6065
[2] RMB 312 Manjimup, Western Australia 6258

Abstract – In terms of its biota, Koolan is the most thoroughly inventoried island on the Kimberley coast. We provide annotated lists of the animal species known from the island: three earthworms, eight land snails, two scorpions, one centipede, nine spiders, two ants, 34 butterflies, one amphibian, 35 reptiles, 116 birds and 18 mammals. In addition, the W.A. Museum holds unsorted collections of moths and beetles. A range of animals have been introduced, including an earthworm *Dichogaster bolaui*, a land snail *Laevicaulis alte*, an ant (*Monomorium destructor*), a cockroach and four mammals including the feral goat (*Capra hircus*). Koolan's indigenous fauna is a sub-set of taxa known from the adjacent mainland, although the blind snake *Ramphotyphlops yampiensis*, and the land snails *Kimboraga koolanensis* and *Amplirhagada astuta*, appear to be endemic to the island. The bird list was accumulated during 10 years of monthly observations, but data on other components of the island's fauna are uneven because of sampling artefacts, with a bias towards large land snails, large butterflies and snakes. Nevertheless, the richness of these groups indicates that the numerous rugged sandstone islands along this tropical sub-humid coastline support complex faunas.

INTRODUCTION

Koolan is the only Kimberley island with a long history of invertebrate and vertebrate collection. While the earliest record we can find is of the land snail *Kimboraga koolanensis* described by Iredale (1939), most collections have been made since 1965.

Broken Hill Pty Ltd developed an iron ore mine on the island during the 1960's. By 1985 there were 150 houses and nearly 900 residents, and a range of exotic plants and animals had been introduced. Fortunately, domestic cats and un-sterilised female dogs were forbidden.

The geology of Koolan is described in Tyler and Griffin (1993). The island has an area of 2580 hectares. Its Proterozoic sandstone lithology is expressed as rugged slopes, ridges and uplands mantled with rock scree and shallow skeletal soils that support savanna woodland communities of eucalypts over hummock grass. The coast is steep with narrow gullies and frequent embayments, but few beaches.

Koolan has a tropical sub-humid climate. It receives an average of about 960 mm of rainfall annually. The "Wet" usually extends from December to April, although most rain falls in January, February and March. Virtually no rain falls from May to November.

Data on of the island's indigenous animals were accumulated gradually by island residents and occasional visitors. This opportunistic pattern of sampling has left gaps in our knowledge of the island's vertebrates and macro-invertebrates, particularly among the relatively immobile taxa likely to be most affected by introduced species. The only systematic biological surveys were monthly bird observations made by one of the authors (L.F.) over the period 1983 to 1993.

From 9 to 15 February 1993, two botanists and one zoologist from CALM collected plants, earthworms, land snails, reptiles and bats to reduce this sampling bias. The field work was carried out just a few months after the mine closed to provide a basis for monitoring the persistence of indigenous and introduced species; the town and mine infrastructure were being dismantled at the time.

This paper reviews the zoological data available from Koolan. Keighery *et al.* (1995) present the corresponding botanical data.

METHODS

The majority of the zoological voucher specimens from Koolan were collected opportunistically by BHP employees resident on the island. Most are lodged at the Western Australian Museum, but some Koolan land snail specimens are held by the American Museum and the Chicago Field Museum of Natural History (Solem 1985).

A search of the invertebrate registers at the W.A. Museum revealed that L. Vernon (= L.F.), O.